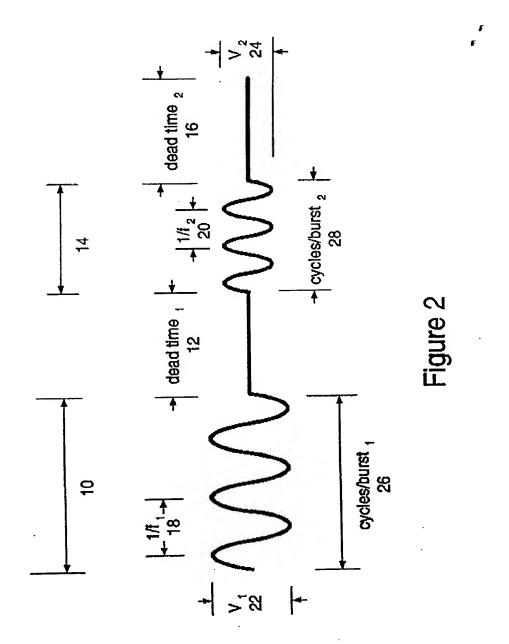
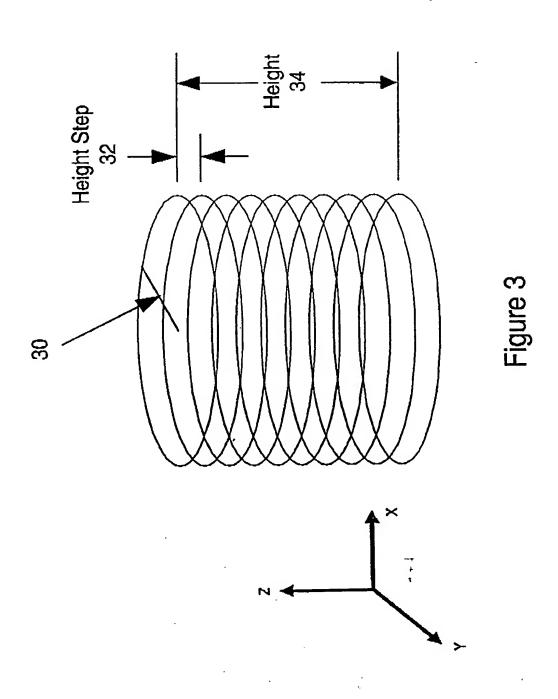


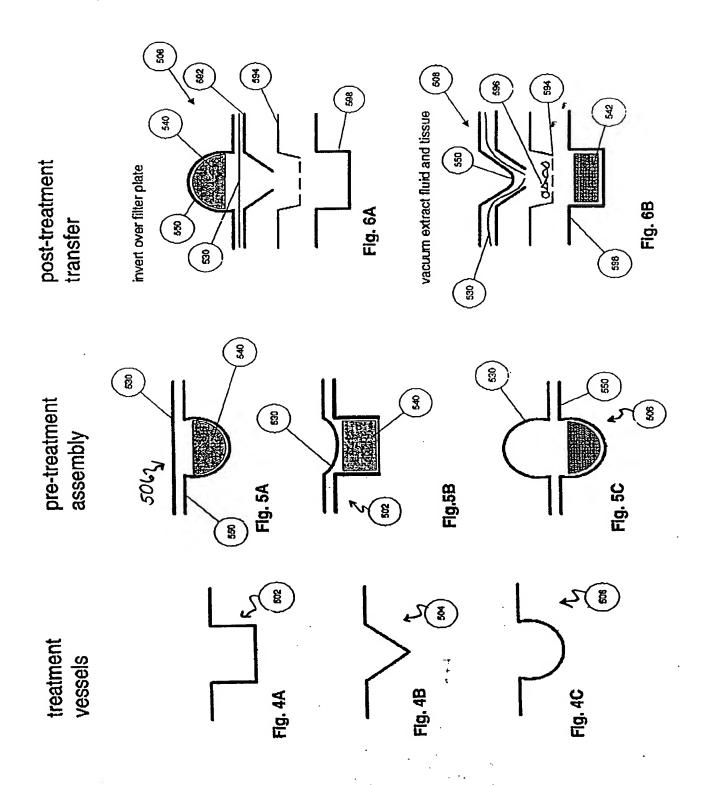
INFORMAL DRAWING Sheet 2 of 11



INFORMAL DRAWING Sheet 3 of 11



INFORMAL DRAWING Sheet 4 of 11



INFORMAL DRAWING Sheet 5 of 11

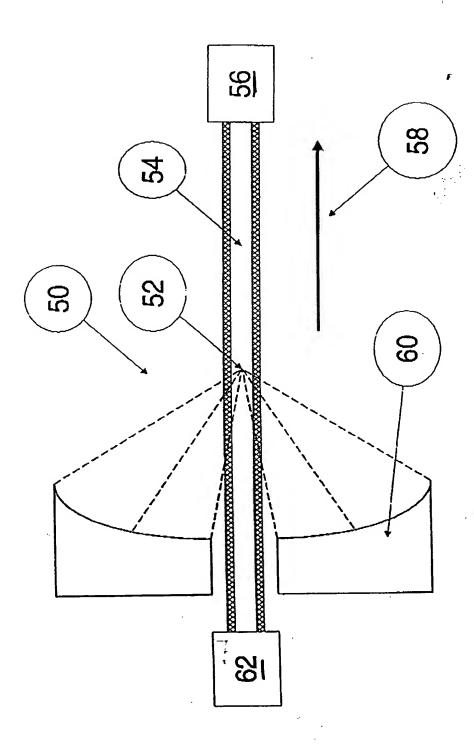
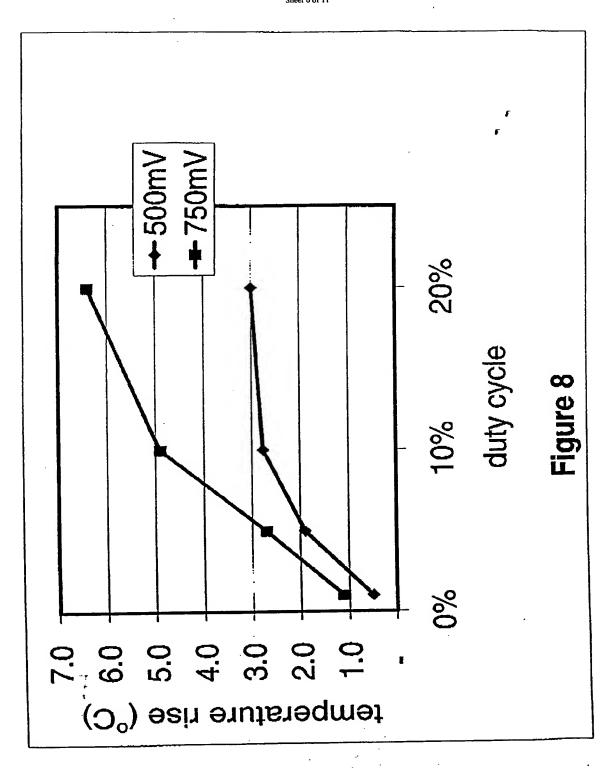
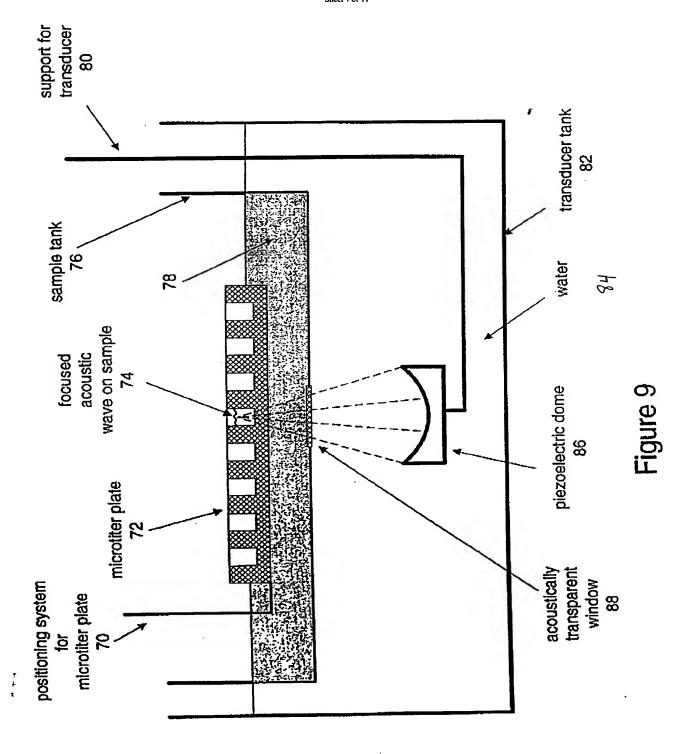


Figure 7

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INFORMAL DRAWING Sheet 7 of 11



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	Chast		e i i		

SYSTEM SPECIFICATIONS		EXTRACTION	TRANSFORMATION	RESEARCH
PERFORMANCE: Format Treatment time		microtiter 50 sec per well	microtiter	variable variable
Temperature	bath temp control Sample temp rise	+4 to +25C <4C	+4 to +40C variable	-10 to +40C variable
Acoustic parameters	Frequency	1.1 MHz	1.1MHz	1.1,3.3MHz
	Treatment profile Acoustic Waveform acoustic mask under plate	shock	sine, shock	sine, shock
Traverse time between samples Atmosphere Control		2 sec none	2 sec gas, overpressure	variable gas, overpressur
CONSUMABLE:	Format Volume	96well PCR plate, off-the-shelf 200ul standard. Other options	24 well plate variable	variable
	single use? Sterile	yes optional	yes yes	single and multi optional
PROCEDURE:		transfer to plate add fluid heat seal plate store at -80C treat at +4C place on vacuum fixture vacuum fransfer to microtiter option: filter at transfer	aliquot cell culture into plate treat at controlled temperature transfer to growth medium	4)
MECHANICAL: Format		benchtop plus half-rack and chiller benchtop plus half rack	ا r benchtop plus half rack	cart plus rack
Water Bath	Water volume temperature control circulation pump degassing system	1 gal distilled water	1 gal distilled water	15 gal

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SySTEM SPECIFICATIONS	EXTRACTION	TRANSFORMATON	RESEARCH
INSTRUMENT CONTROL: LabVIEW x-y-z postłoning (sample)	yes	yes	yes
z'axis (transducer)	manual, 25mm range	manual, optional auto ves	manual yes
l emperature recuback to protocol partial freatments	yes	optional	, o
cavitation detection			yes
video detection and analysis	OL OL	optional	yes
USER INTERFACE: LADVIEW	-		4:20
treatment protocol	fixed	user adjustable	nexible
select treatment positions	pre addressed	user adjustable	Tlexible
temperature profile record	optional	yes	yes
timing information ELECTRICAL:	yes	yes	yes
Power. 110V, 20A			
EOUIPMENT:			
Chiller	yes	Ou	yes
RF Amplifier	yes	yes	yes
Arbitrary waveform generator	yes	yes	yes
Oscilloscope	ou Ou	optional	yes
Computer	yes	yes	yes
motion control	yes	yes	yes
ampliner xy stage			
IR temperature measurement	yes	yes	yes
video	92	optional	yes
laser sight/cross-hairs	yes	yes	yes
vacuum fixture	yes	ou	o C
Transducer			
matching network			4
cables			F
circulation pump			
convection cooling			
filter	Š	legoitoo	300
cavitation detection	OU OU	קהסומי	326

Figure 11

Title: APPARATUS AND METHODS FOR CONTROLLING SONIC TREATMENT

INEAI MENT Inventors: James A. Laugharn, Jr. et al. Atty Docket No.: BMA-005C1 Attorney for Applicants: Mark L. Beloborodov Express Mail Mailing Label No. EV334229348US Figure 12

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LabVIEW PROGRAMMING TASKS		
	Extraction	Transformation
GENERAL		
display revision level	×	×
safety interlocks	×	×
time and date stamp		×
STOP function	x	x
	user can reset defaults	X F
save configuration to file	user can reset deliants	x ^F
operating parameters		×
protocol		^
save data to file		
treatment postions and protocols		X
temperature profile		X
error conditions		×
password protection on Vis	×	×
load configuration from file		×
user selects treatment positions	x	×
DISPLAY		
User selectable treatment positions -graphical	×	×
current status		
treatment position -graphical	×	×
current protocol	by name	X
· · · · · · · · · · · · · · · · · · ·	<i>b</i> ,	X
-voltage		×
-duty cycle		×
-etc		
time to finish current sample	X	X
safety interlock status	X	X
sample temperature, graph and current temp		X
time and date		X
ULTRASONICS		
initialize instrument(s)	x	×
stop function	×	×
mix and treat	predetermined	userprogrammable
frequency	predetermined	×
voltage-treat	predetermined	×
voltage-mix		×
pulselength-treat	predetermined predetermined predetermined predetermined	×
pulselength-mix	prevererminen	×
deadtime-mix>treat		x
	•	×
deadtime-treat>mix	predetermined	×
Total cycles (or time)	prederentimen	optional
cavitation detection		opuona.
POSITIONING		
setup and diagnostics		
initialize stepper control board	×	X
calibrate (home)	X	X
check limits (limit switches)	X	X

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Lab View PROGRAMMWE TASKS

POSITIONING	Extraction	Transformation
setup and diagnostics	*	predetermined
program sample positions	predatermined	predetermined
program dithering	predetermined	×
operation		• ,
select sample format	predetermned	
select treatment positions	predetermined	×
select treatment for each position	×	×
select dithering profile	on/off only	x_
stop at limits	×	x
TEMPERATURE		
measure temperature		×
display temperature	• • •	
momentary		. x
graph	•	×
record temperature		x
current temperature	•	X
record min/max		optional
save to file		optional
manage process based on temperature		
pause process to cool		
modify process		٠.
go to next well at set temperature rise		

Figure 13